

due to Dr. Horstmann Klaus, Zoologisches Institut, Rontgenring 10, D-8700 Wurzburg for confirmation of species, Dr. R. H. Kamble and

Dr. R. M. Sharma, Z.S.I., Pune for encouragement. Financial assistance from C.S.I.R., New Delhi is gratefully acknowledged.

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TWO NEW SPECIES OF *ACANTHASPIS* (HETEROPTERA: REDUVIIDAE: ACANTHASPIDINAE) FROM SOUTHERN INDIA¹

S. J. VENNISON AND DUNSTON P. AMBROSE²

(With fifteen text-figures)

Distant (1902 & 1910) in his fauna of British India described 41 species of *Acanthaspis*. In the present paper two new species of *Acanthaspis*, viz., *A. philomanmariae* and *A. livingstonei* are described and illustrated.

KEY FOR THE IDENTIFICATION OF INDIAN SPECIES OF GENUS *Acanthaspis*:

1. First joint of antennae passing apex of head 2
 First joint of antennae short, not passing apex of head 40
2. Posterior lobe of pronotum with two long discal spines 3
 Posterior lobe of pronotum without two long discal spines. 7
3. First and second joints of rostrum equal or subequal in length 4
 First joint of rostrum a little longer than second *A. subrufa* Distant
4. Legs not annulated, almost unicolourous 5
 Legs with dark annulation ... *A. sericata* Distant
5. Pronotal spines directed laterally
 *A. quinquespinosa* (Fabricius)
 Pronotal spines directed backwards 6
6. Black and ochraceous, posterior pronotal lobe

- transversely rugulose *A. bombayensis*
 Distant
- Dull reddish and piceous posterior pronotal lobe finely granulate *A. xeramplinia* Distant
7. Posterior lobe of pronotum with two or three short but prominent discal tubercles 8
 Posterior lobe of pronotum discally unarmed ..
 21
8. Pronotum with three discal tubercles
 *A. philomanmariae* sp. nov.
 Pronotum with two discal tubercles 9
9. Pronotum unicolourous, unspotted 10
 Pronotum with anterior and posterior lobes differently coloured or palely marked 12
10. A spot behind each eye on side of ocelli, connexivum spotted, first joint of antennae about as long as head 11
 No spot behind the eyes, connexivum unicolourous, first joint of antennae little longer than head *A. bistillata* Stal.
11. First joint of rostrum distinctly longer than the second *A. fulvipes* Dall.
 First joint of rostrum shorter than the second *A. luteipes* Walk.

¹ Accepted November 1986.

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12. Pronotum with anterior and posterior lobes differently coloured 13
 Pronotum palely marked 15
13. Scutellar spine long and porrect
 *A. porrecta* Distant
 Scutellar spine obliquely ascendant 14
14. Black and dull red *A. tavoyana* Distant
 Ochraceous and fuscus *A. biligata* Walk.
15. Legs entirely or almost unicolourous 16
 Legs not unicolourous 19
16. Legs piceous 17
 Legs black *A. gulo* Stal.
17. Head distinctly sulcate between the eyes
 *A. vincita* Distant
 Head not distinctly sulcate between the eyes .. 18
18. Pronotum disk not sulcate *A. flavipes* Stal.
 Pronotum with the disk sulcate
 *A. angularis* Stal.
19. Apices of femora and tibiae palely coloured.. 20
 Legs with dark annulations
 *A. zebraica* Distant
20. Pronotum lateral angles subspinously produced
 *A. helluo* Stal.
 Pronotum lateral angles dentately produced
 *A. pernobilis* Reut.
21. Lateral angles of pronotum prominent, spinous or tubercular 22
 Lateral angles of pronotum rounded, not prominent 39
22. Pronotum unicolourous unspotted 23
 Pronotum not unicolourous 26
23. Legs unicolourous *A. rugulosa* Stal.
 Legs not unicolourous 24
24. Femora and tibiae differently coloured
 *A. megaspila* Walk.
 Femora and tibiae not differently coloured ... 25
25. Femora black, their apices and tibiae pale
 *A. apicata* Distant
 Legs pale, femora darkly annulated
 *A. binghami* Distant
26. Pronotum with lateral angles palely coloured ..
 *A. succinea* Distant
 Pronotum with anterior and posterior lobes differentially coloured or with spots or markings 27
27. Pronotum dark with pale markings or spots or anterior and posterior lobes differently coloured 28
 Pronotum pale with dark spots and markings..
 *A. inscripta* Distant
28. Pronotum with anterior and posterior lobes differently coloured 29
- Pronotum with pale markings 32
29. Fuscus 30
 Black 31
30. Obscurely fuscus *A. lineatipes* Reut.
 Dilutely fuscus *A. fusconigra* Dohrn.
31. Scutellar spine obliquely erect
 *A. diviscollis* Walk.
 Scutellar spine sub-reflexed
 *A. concinnula* Stal.
32. Legs unicolourous *A. trimaculata* Reut.
 Legs not unicolourous 33
33. Corium fasciate *A. cinctricrus* Stal.
 Corium spotted 34
34. First joint of antennae as long as head 35
 First joint of antennae shorter than head 38
35. Scutellar spine almost horizontally erected
 *A. micrographa* Walk.
 Scutellar spine obliquely ascendant 36
36. First joint of antennae darkly coloured than other joints *A. siva* Distant
 First joint of antennae not darkly coloured than other joints 37
37. Black and luteous *A. rama* Distant
 Piceous, fuscus, flavius and testaceous
 *A. sexguttata* Fabricius
38. First joint of rostrum little longer than the second
 *A. tergemina* Burm.
 First and second joints of rostrum about equal in length *A. pustulata* Stal.
39. Niger or nigropiceous, scutellar spine not straight 40
 Brownish ochraceous, scutellar spine straight ...
 *A. livingstonei* sp. nov.
40. Nigropiceous scutellar spine recurved, not resembling *Coranus* *A. annulicornis* Stal.
 Black scutellar spine not recurved, resembling *Coranus* *A. coranodes* Stal.
41. Antennae four-jointed 42
 Antennae five-jointed *A. unifasciata* Wolff.
42. Micropterus *A. pedestris* Stal.
 Alate *A. biguttula* Stal.

I. *Acanthaspis philomanmariae* sp. nov.

MALE: Length: entire 6.55 mm; width across the eyes 0.47 mm and across the prothorax 1.9 mm (Fig. I, 1). Overall colour brownish, apex of head and entire legs and antennae brownish ochraceous, markings on the prothorax, two pairs of elongate oval spots in the

claval and sub-claval region and membrane dark spots in the connexivum, venter of thorax and the bands in the femur dark brownish, integument polished, strongly pilose.

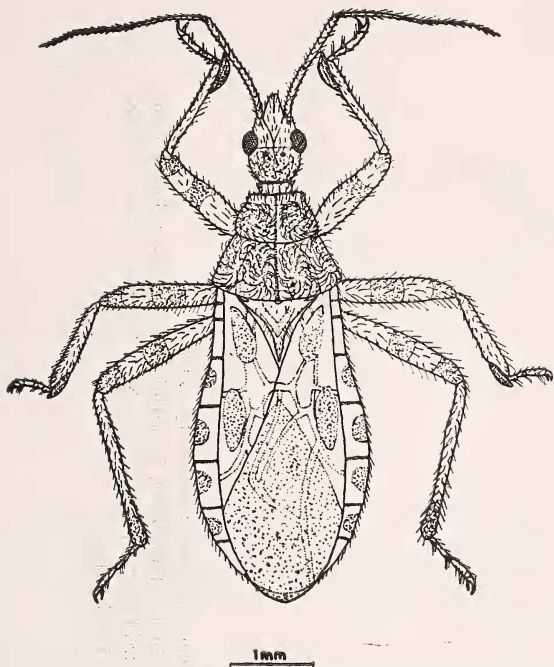


Fig. I. 1. *Aconthaspis philomanmariae* sp. nov. male.

Head 1.13 mm long, strongly pilose; paler anteocular region (0.53 mm long) is separated from the darker postocular region (0.6 mm long) by black, laterally protruding compound eyes (0.2 mm diameter); two brown glassy ocelli, distance between ocelli greater than width of ocellus; anteocular region has prominent clypeal marking, 2 antenniferous tubercles — one at the base of each antenna, postocular region more rugose (Figs. I, 2 & 3). 4-segmented antennae (3.14 mm long) inserted frontally; scape shortest (0.5 mm long), elongate, stout, outwardly deflexed and extends beyond the apex of head, pedicel (0.62 mm long) slightly longer than scape; flagellar seg-

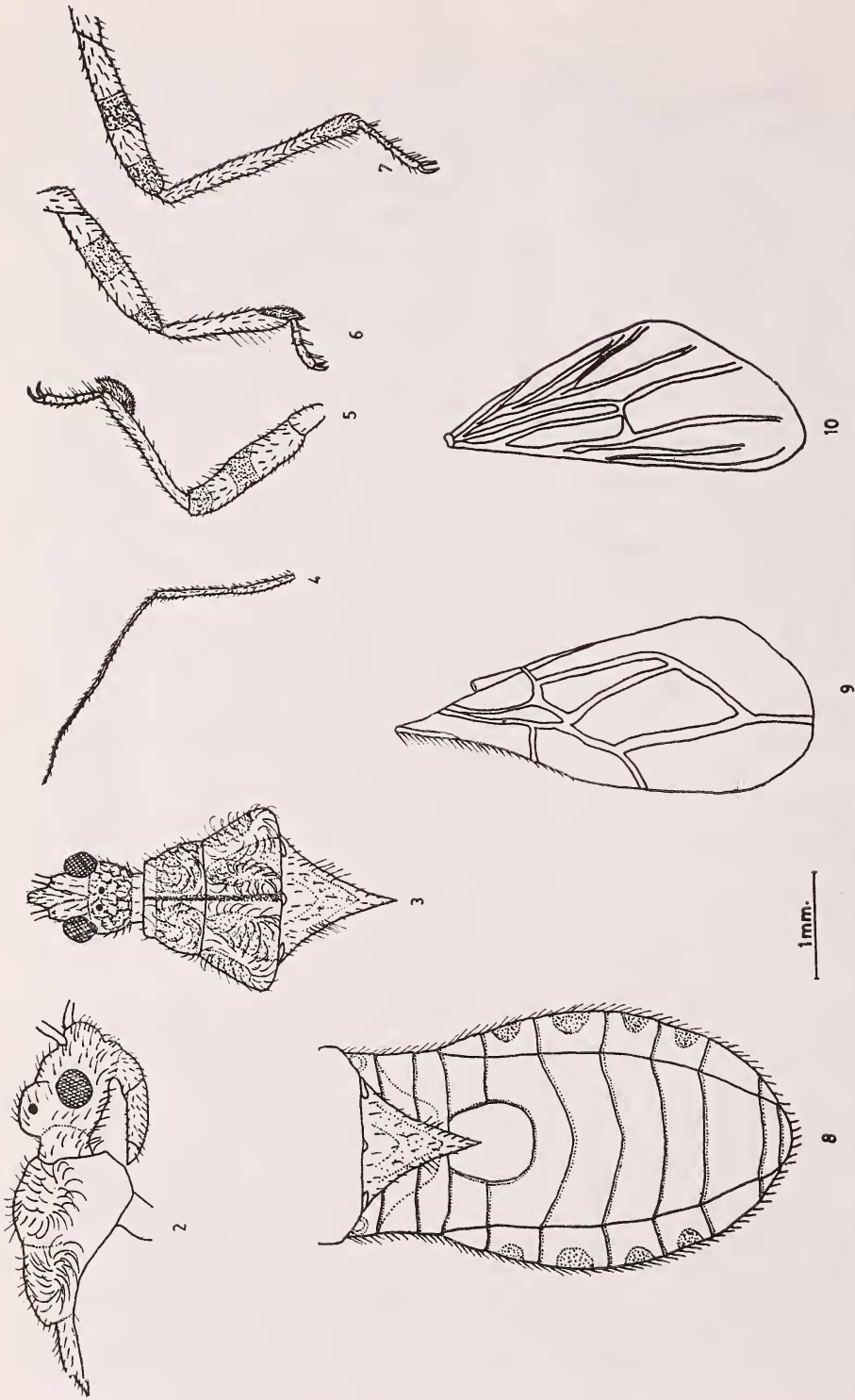
ments filiform; first flagellar segment the longest (1.05 mm); second flagellar segment (0.9 mm) longer than pedicel (Fig. I, 4); rostrum stout (1.08 mm long) and richly pilose, first (0.45 mm) and second (0.42 mm) joints subequal in length; third very small (0.2 mm); first segment strongly curved; second segment almost straight (Fig. I, 2).

Length of pronotum 1.56 mm; broader (1.9 mm) than long; lateral margins of anterior and posterior lobes forming slight angle, short anterior and long posterior lobes are separated by a well developed transverse sulcus (Fig. I, 3); 2 lateral suboval spots in the anterior lobe and 4 lateral elongately oval spots in the posterior lobe brownish ochraceous; posterior lobe with 2 lateral and 1 median, short but prominent tubercles; pronotum divided longitudinally by a median sulcus; scutellum triangular without any lateral process and faintly rugose anteriorly; apex projecting but not truly spinose (Fig. I, 8), legs richly pilose (Fig. I, 5-7) fore- (3.66 mm long) and mid-legs (3.53 mm long) almost equal in length; hind leg the longest (5.03 mm); fore- and mid-tibiae with short fossula spongiosae projecting beyond the tibial ends (0.34 mm and 0.3 mm long respectively); tarsi three-segmented; first segment very short, third segment as long as first and second combines.

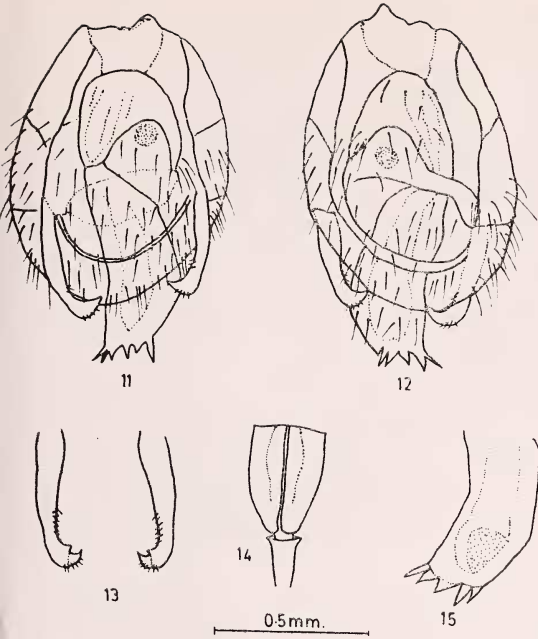
Hemelytra (3.8 mm long and 2.07 mm broad) extends slightly beyond the apex of abdomen with distinct venation on corium and membrane; venation of hemelytra and hindwings as in figure I, 9 & 10.

Abdomen longer (3.7 mm long and 2.49 mm broad) polished (Fig. I, 8), laterally richly pilose, ventrally convex, connexivum narrow with four dark brownish spots, connexivum devoid of spines. Genitalia as in Fig. I, 11-15.

Female has longer anteocular (0.58 mm) and postocular areas (0.62 mm), distance



Acanthaspis philomanmariae sp. nov.
Fig. 1. 2-10: 2. Head and pronotum, dorsal view; 3. Head and pronotum lateral view; 4. Antenna; 5. Fore leg; 6. Mid leg; 7. Hind leg; 8. Abdomen dorsal surface; 9. Hemelytron; 10. Hind wing.



Acanthaspis philomanmariae sp. nov.

Fig. I. 11-15: 11. Upper surface of Pygophore, with parameres; 12. Ventral surface of pygophore, with parameres; 13. Parameres; 14. Phallus; 15. Struts.

between eyes (0.52 mm), antennae (3.57 mm), fore, mid and hind legs (3.74, 3.74 and 5.63 mm respectively), abdomen (4.55 mm) and hemelytra (3.98 mm) than the male.

TYPE INFORMATION:

Holotype: Male, collected from Keeripparai, a rubber plantation in Kanyakumari District of Tamil Nadu on 30.05.1986. Allotype — Female, data same as the holotype, both are pinned and deposited in the Department of Zoology, St. Xavier's College, Palayankottai, India. Paratypes (several) collected from the same locality.

A. philomanmariae sp. nov. is closer to *A. bistillata* Stal., *A. fulvipes* Dall and *A. luteipes* Walk. in having the posterior pronotal lobe with discal tubercles but not two long discal spines. But *A. philomanmariae* with three pro-

notal discal tubercles can be easily distinguished from these species with two pronotal tubercles.

Etymology: This species is named after the parents (Philoman & Mary) of one of us (DPA).

Acanthaspis livingstonei sp. nov.

The present species compares well with the description given for the genus *Acanthaspis* and is described as new to science under the name *A. livingstonei*.

MALE: Length: entire 8 mm; width across the eyes 0.47 mm and across prothorax 2.32 mm. (Fig. II, 1).

Overall colour light brownish ochraceous, flagellar segments of antennae and annulations on the femora dark brownish; hemelytra black with anterolateral and median sanguineous spots on the corium; integument polished, strongly pilose.

Head 1.21 mm long, strongly pilose, subglobose; declivous anteocular portion (0.47 mm) shorter than darker postocular portion (0.74 mm); compound eyes (0.23 mm diameter) slightly protruding transversely, two prominent oval shaped, brown, glassy ocelli occupying just behind the eyes, deep sulcus in the synthlipsis; Y-shaped sulcus in the anteocular portion prominent; a central sulcus divides the clypeus; an antenniferous tubercle just above the compound eyes prominent; four-segmented antennae (4.52 mm long) inserted frontally; slightly outwardly deflexed scape stout, shortest (0.66 mm) and extends beyond the head; pedicel linear (0.98 mm) and the flagellar segments filiform, first flagellar segment (1.58 mm) longer than the second flagellar segment (1.31 mm) (Fig. II, 4) rostrum stout (1.22 mm long), scarcely pilose; slightly distant from gula; slightly curved first (0.44 mm long) and straight second (0.56 mm long) segments subequal in length; third

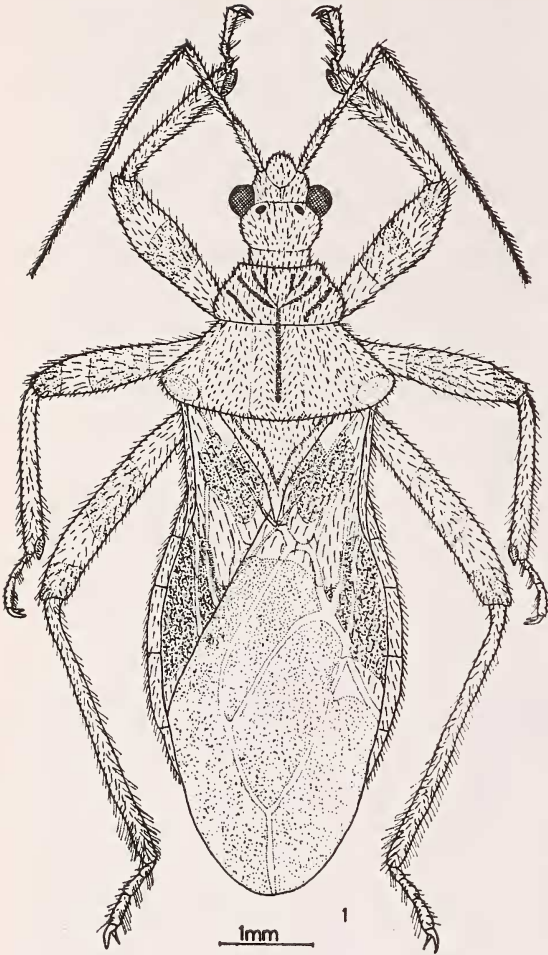


Fig. II. 1. *Acanthaspis livingstonei* sp. nov. male.

segment shortest (0.22 mm); there is a distinct neck (Fig. II, 2).

Length of pronotum 1.68 mm; broader (2.32 mm) than long; lateral margins of anterior and posterior lobes rounded, not prominent; pronotum constricted before middle by a transverse sulcus (Fig. II, 3); elevated anterior lobe with irregular sculpturations; posterior lobe slightly rugulose; pronotum longitudinally divided by a deep sulcus which is evanescent before the posterior end; richly pilose; posterolateral ends of pronotum with a depression

on each side; scutellum triangular; its disc excavate without any lateral process; the posterior process well developed and spiniform; pilose (Fig. II, 8).

Legs strongly pilose, fore legs shortest and hind legs longest (fore, mid and hind legs 4.69, 3.34 and 11.18 mm respectively) (Fig. II, 5-7), infusate; anterior femora slightly swollen; fore- and mid-tibiae with terminal spongy fossula; tarsi three-segmented; the first segment shortest, the third segment longest; ending with claws.

Hemelytra (5.13 mm long and 2.54 mm broad) extending considerably beyond the apex of abdomen; with concolourous venation distinct on corium and membrane (Fig. II, 9 & 10); corium slightly pilose, membrane polished.

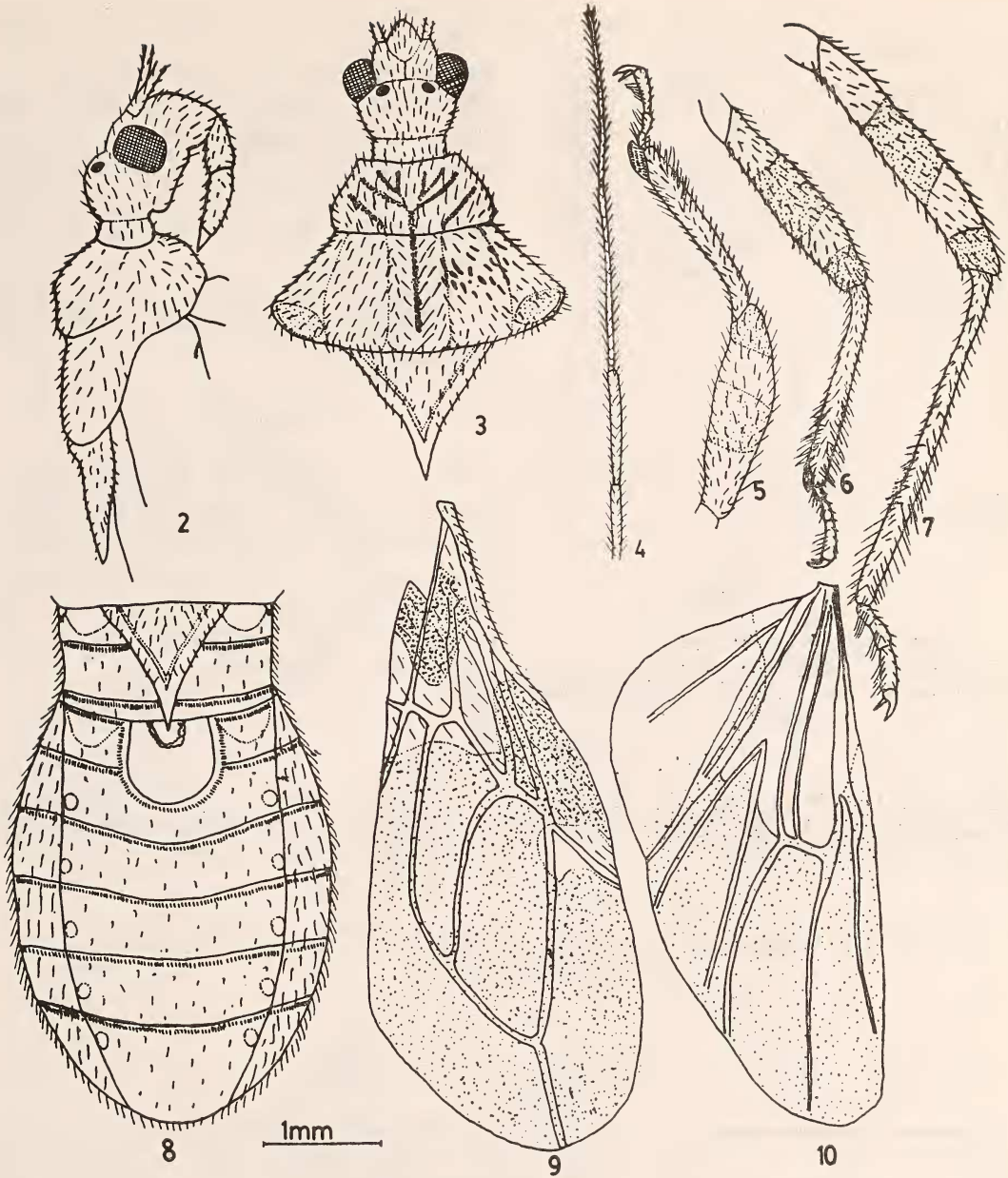
Abdomen elongately oval (4.7 mm long and 2.9 mm broad); laterally strongly pilose; centrally slightly pilose; connexivum unspotted; venter of abdomen convex (Fig. II, 8); genitalia as in fig. II, 11-15.

Female has longer anteocular area (0.49 mm), shorter postocular area (0.72 mm), longer distance between eyes (0.57 mm), antennae (4.76 mm), rostrum (1.26 mm), pronotum (1.84 mm), fore, mid and hind legs (4.64, 4.64 and 6.67 mm respectively), fossula spongiosae (0.46 & 0.24 mm), abdomen (5.61 mm) and hemelytra (5.66 mm) than the male.

TYPE INFORMATION:

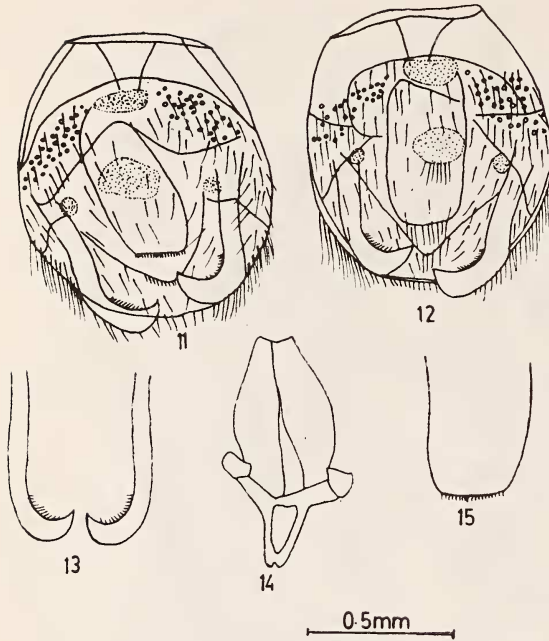
Holotype: ♂, collected from Thekkady tropical rain forest in Madurai district of Tamil Nadu on 14.06.1986. Allotype ♀ data same as the holotype, both are pinned and deposited in the Department of Zoology, St. Xavier's College, Palayankottai, India. Paratypes (several) collected from the same locality.

A. livingstonei is closer to *A. annulicornis* Stal. and *A. coranodes* Stal. in having the following characters: (1) first joint of antennae passing apex of head, (2) posterior lobe of



Acanthaspis livingstonei sp. nov.

Fig. II. 2-10: 2. Head and pronotum, lateral aspect; 3. Head and pronotum, dorsal view; 4. Entire antenna; 5. Fore leg; 6. Mid leg; 7. Hind leg; 8. Abdomen, dorsal view; 9. Hemelytron; 10. Hind wing.



Acanthaspis livingstonei sp. nov.

Fig. II. 11-15: 11. Pygophore; dorsal view; 12. Pygophore, ventral view; 13. Parameres; 14. Phallus; 15. Struts.

pronotum discally unarmed, (3) lateral angles of pronotum round, not prominent, (4) pronotum unicolourous and unspotted and (5) legs pale, femora darkly annulated. But *A. livingstonei* can be identified from *A. annulicornis* and *A. coranodes* in having unspotted connexivum, tibiae devoid of annulation, sanguineous spots on the black hemelytra and straight scutellar spine.

Etymology: This species is named in honour of our teacher and entomologist Dr. David Livingstone.

ACKNOWLEDGEMENTS

We are grateful to the authorities of Zoological Survey of India, for their help in determining the status of these materials and to the authorities of St. Xavier's College for facilities. The financial assistance of CSIR (Grant No. 513/(84)/EMR-II) for this work is gratefully acknowledged.

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A NEW SPECIES OF *CONNARUS* LINN. (CONNARACEAE) FROM PENINSULAR INDIA¹

K. RAMAMURTHY AND R. RAJAN²

(With nine text-figures)

Connarus parameswaranii sp. nov.

Connarus sclerocarpus (Wight & Arn.) Schellenb. affinis, sed foliolis ovato-lanceolatis,

opicibus abrupte acuminatis, nervis supra indistinctis, costis brunneo — pubescentibus; paniculis stellato-pubescentibus, velutinis; petalis glabris, folliculis ellipsoideis, minute rostratis, brunneo-tomentosis praecipue differt.

¹ Accepted May 1987.

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Connarus parameswaranii sp. nov. Allied to *Connarus sclerocarpus* (Wight & Arn.) Schel-